## PRELIMINARY TECHNOLOGY ASSESSMENT

## LED Lighting with Integrated Controls



## What is this Technology?

This LED retrofit technology integrates lamp, driver, daylight controls, and occupancy sensors into a single unit. It is designed for one-for-one replacement of existing T-12 and T-8 fluorescent fixtures and can be installed using existing wiring. Automatic system calibration and the use of a handheld remote to group fixtures improves the efficiency of commissioning.

## Why is GSA Interested?

This technology promises to overcome a key hurdle to realizing lighting energy and cost savings: the effective integration and commissioning of controls. The LED system reduces energy consumption and increases occupant visual comfort.



**ENERGY EFFICIENCY** The LED lighting system consumes about half as much electricity as a recessed 3-lamp T-8. Estimates suggest that dimming due to occupancy and daylight harvesting will reduce annual operating hours by 1,200. The energy savings are estimated at 3.0 kWh/ft²/year.



**COST EFFECTIVENESS** The LED lamps' greater energy efficiency and longer operating lifespan, as well as the system's ability to use existing wiring, should produce significant cost savings. The estimated payback for this technology is 6 to 7 years, depending on installation variables and product pricing.



**OPERATIONS & MAINTENANCE** System commissioning and controls management are easily accomplished using a handheld remote. System compatibility issues are eliminated since all components are from the same manufacturer. The LED lamp's operational lifespan is two or three times that of the fluorescent's. Automated system calibration facilitates office space reconfiguration.



**DEPLOYMENT POTENTIAL** Because this LED lighting system does not require additional wiring, all GSA office buildings are candidates for the technology, though it is best suited for the open office layout currently emerging as a space-saving strategy in government and private sector offices.

Adapted from a report by the National Renewable Energy Laboratory. The Green Proving Ground program, in association with a federal laboratory, is subjecting LED Lighting with Integrated Controls to real-world measurement and verification in GSA buildings. Findings from that investigation will be available in late 2014 or early 2015.